FIG.1

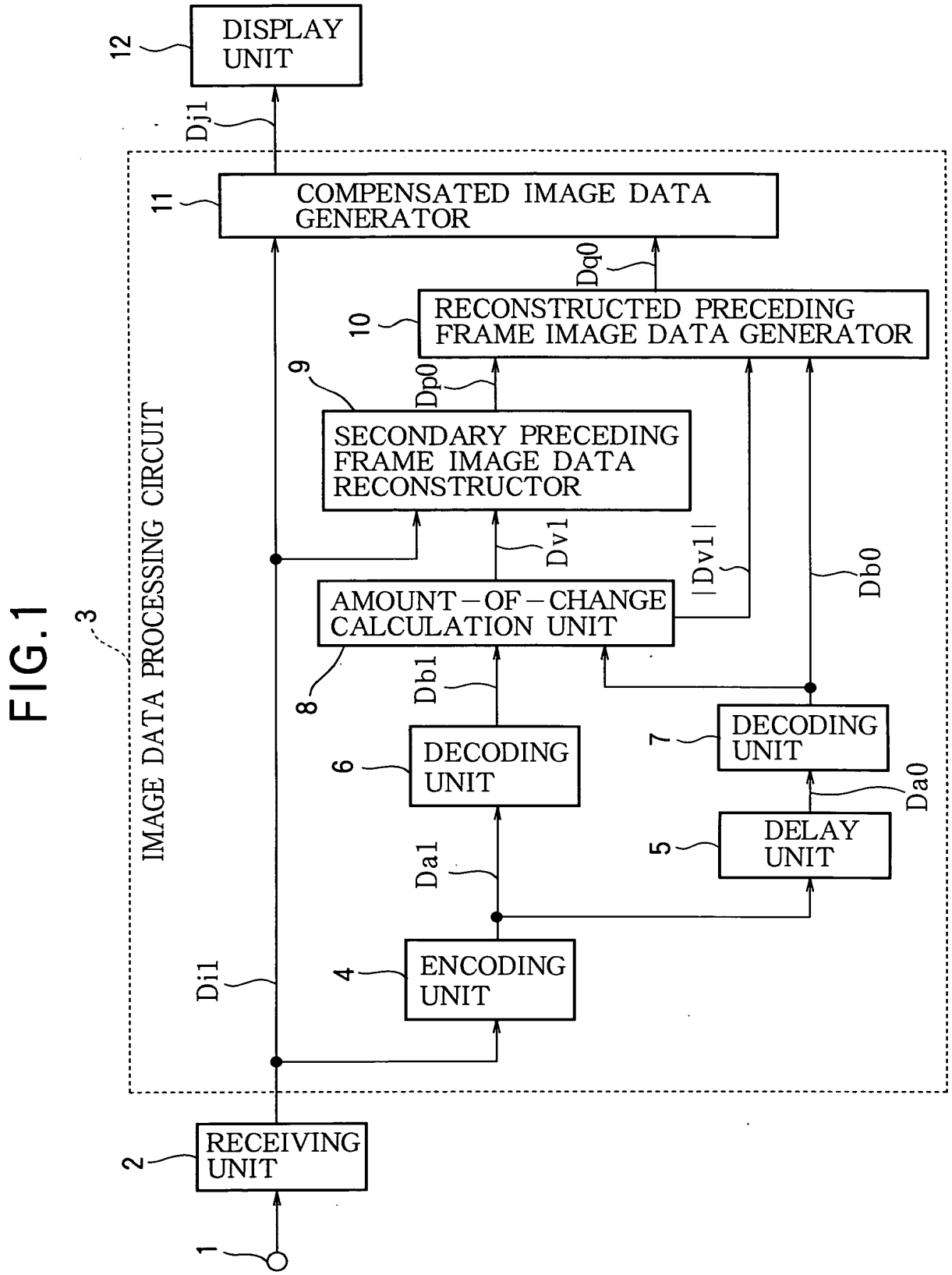

DISPLAY UNIT
12
Dj1
COMPENSATED IMAGE DATA GENERATOR
11
Dq0
RECONSTRUCTED PRECEDING FRAME IMAGE DATA GENERATOR
10
Dp0
9
SECONDARY PRECEDING FRAME IMAGE DATA RECONSTRUCTOR
Dv1
|Dv1|
Db0
AMOUNT-OF-CHANGE CALCULATION UNIT
8
Db1
DECODING UNIT
6
DECODING UNIT
7
Da0
DELAY UNIT
5
Da1
ENCODING UNIT
4
Di1
IMAGE DATA PROCESSING CIRCUIT
3
RECEIVING UNIT
2
1

FIG.2A

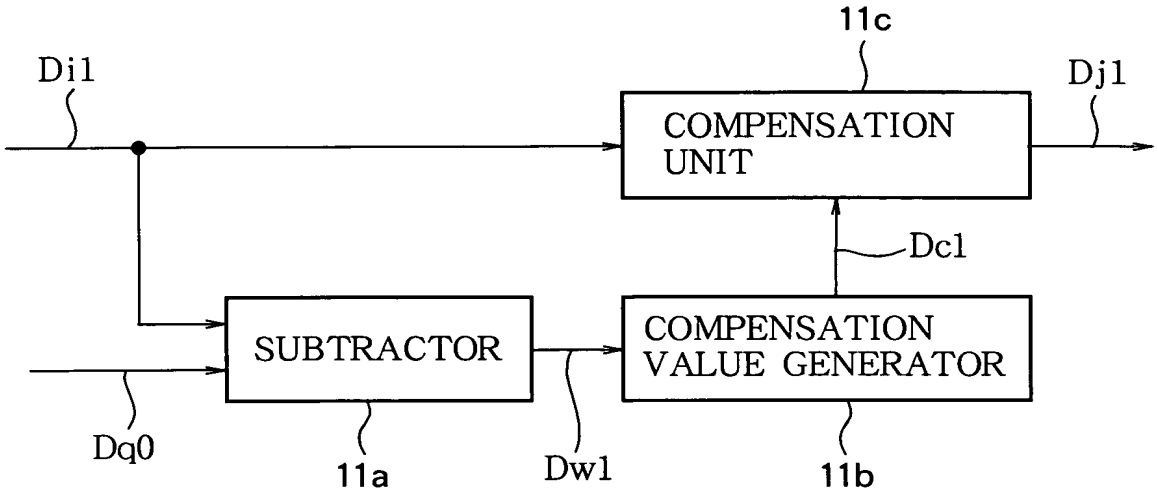

11c
Di1
Dj1
COMPENSATION UNIT
Dc1
SUBTRACTOR
COMPENSATION VALUE GENERATOR
Dq0
11a
Dw1
11b

FIG.2B

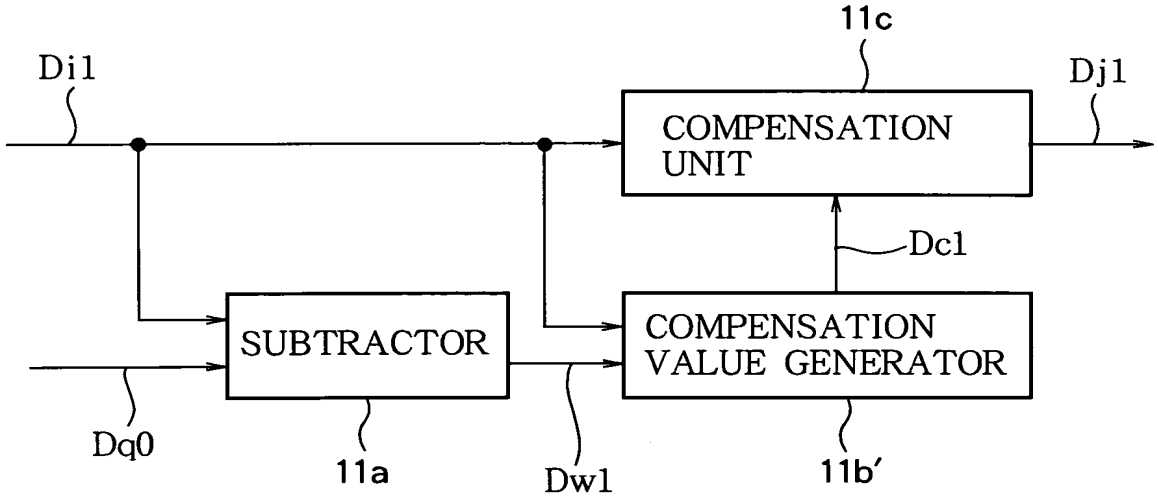

11c
Di1
Dj1
COMPENSATION UNIT
Dc1
SUBTRACTOR
COMPENSATION VALUE GENERATOR
Dq0
11a
Dw1
11b'

FIG.3A

Di0

	A	B	C	D
a	52	152	52	52
b	52	152	52	52
c	48	148	48	48
d	48	148	48	48

FIG.3B

Da0

La=100 Lb=100

0	1	0	0
0	1	0	0
0	1	0	0
0	1	0	0

FIG.3C

Db0

	A	B	C	D
a	50	150	50	50
b	50	150	50	50
c	50	150	50	50
d	50	150	50	50

FIG.3G

Dv1

	A	B	C	D
a	0	0	0	0
b	0	0	0	0
c	0	0	0	0
d	0	0	0	0

FIG.3D

Di1

	A	B	C	D
a	52	152	52	52
b	52	152	52	52
c	48	148	48	48
d	48	148	48	48

FIG.3E

Da1

La=100 Lb=100

0	1	0	0
0	1	0	0
0	1	0	0
0	1	0	0

FIG.3F

Db1

	A	B	C	D
a	50	150	50	50
b	50	150	50	50
c	50	150	50	50
d	50	150	50	50

FIG.3H

Dq0

	A	B	C	D
a	52	152	52	52
b	52	152	52	52
c	48	148	48	48
d	48	148	48	48

FIG.4

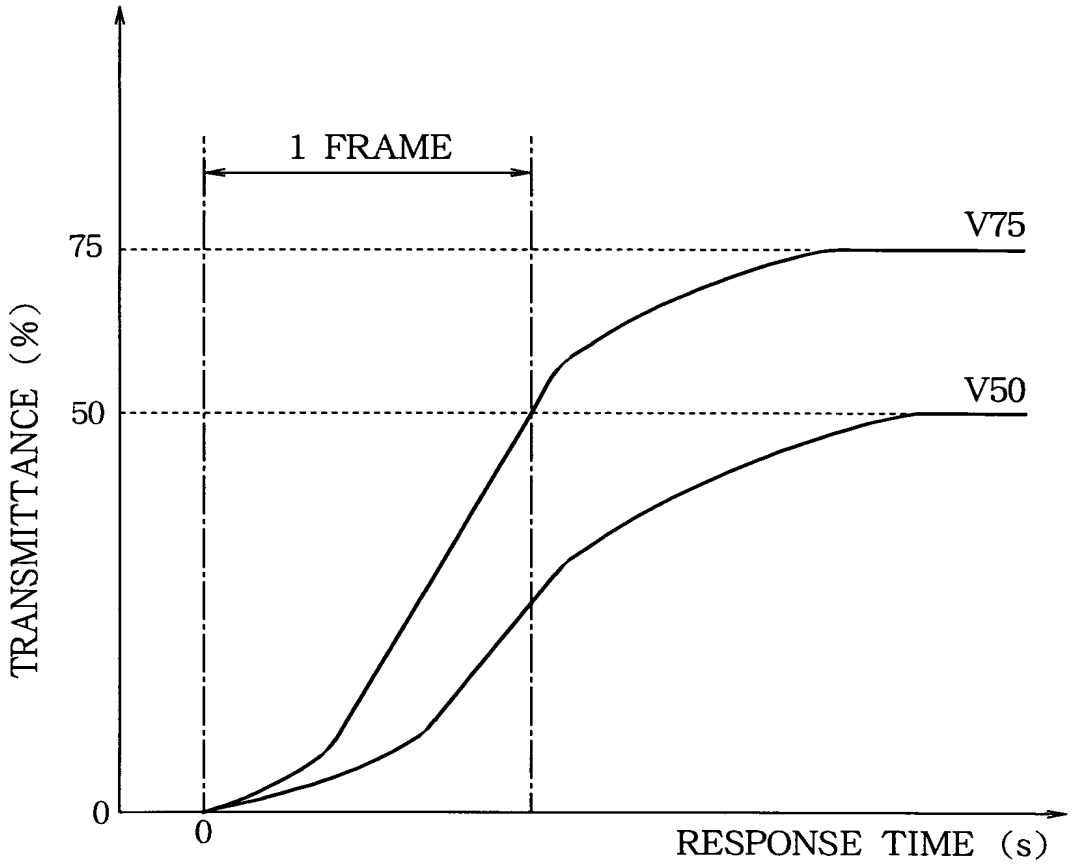


FIG.5A

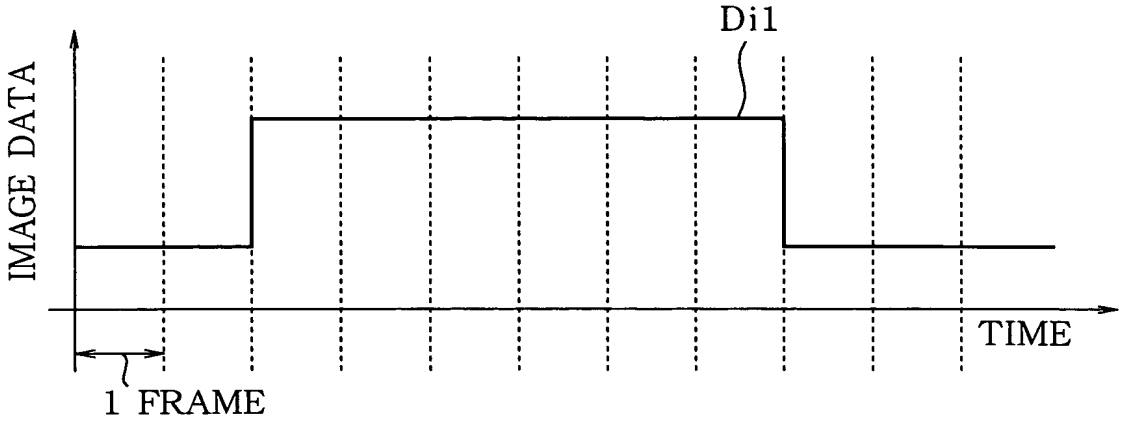


FIG.5B

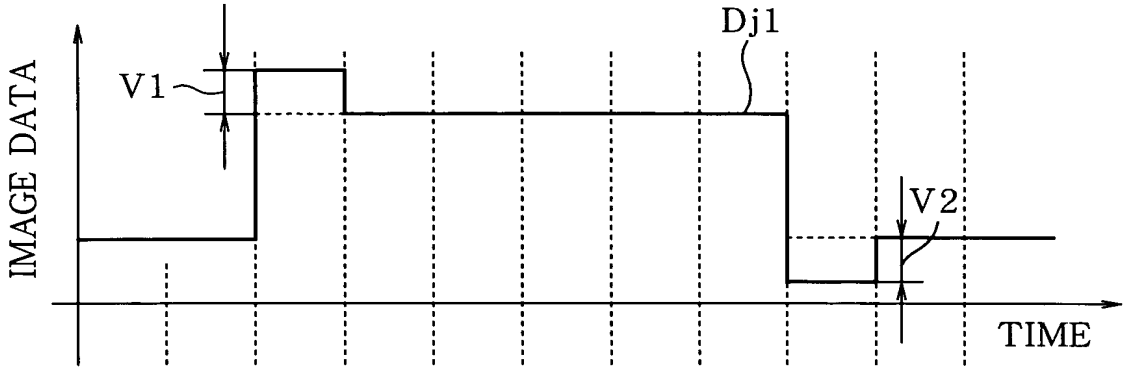


FIG.5C

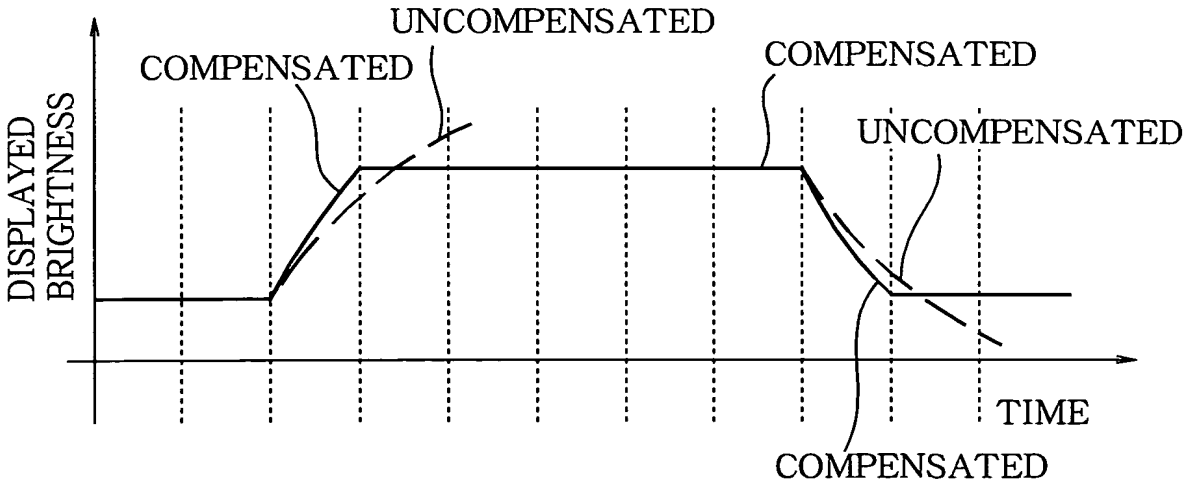


FIG.6A

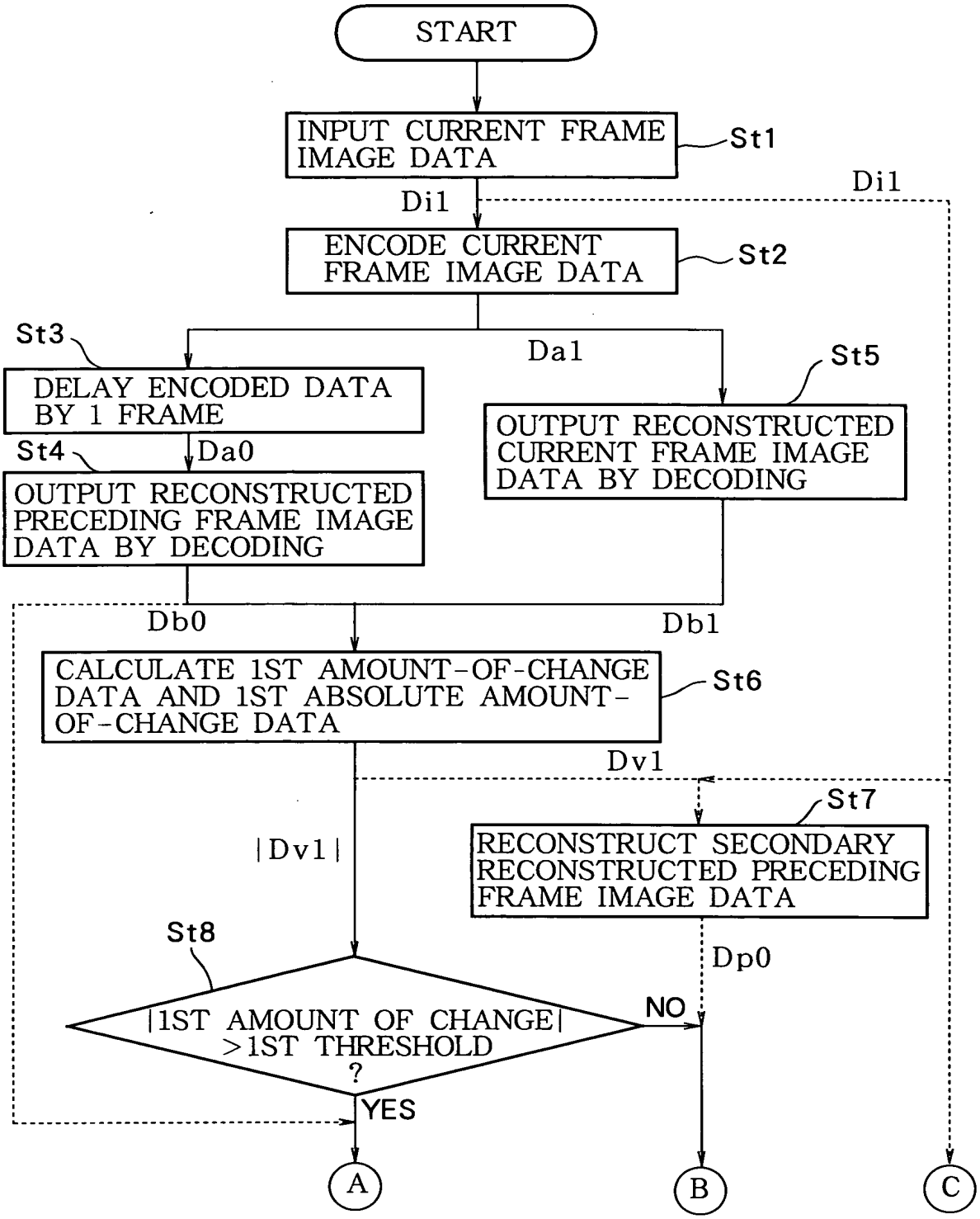

START
INPUT CURRENT FRAME IMAGE DATA
St1
Di1
Di1
ENCODE CURRENT FRAME IMAGE DATA
St2
St3
Da1
St5
DELAY ENCODED DATA BY 1 FRAME
OUTPUT RECONSTRUCTED CURRENT FRAME IMAGE DATA BY DECODING
St4
Da0
OUTPUT RECONSTRUCTED PRECEDING FRAME IMAGE DATA BY DECODING
Db0
Db1
CALCULATE 1ST AMOUNT-OF-CHANGE DATA AND 1ST ABSOLUTE AMOUNT-OF-CHANGE DATA
St6
Dv1
St7
|Dv1|
RECONSTRUCT SECONDARY RECONSTRUCTED PRECEDING FRAME IMAGE DATA
St8
Dp0
|1ST AMOUNT OF CHANGE| >1ST THRESHOLD ?
NO
YES
A
B
C

FIG.6B

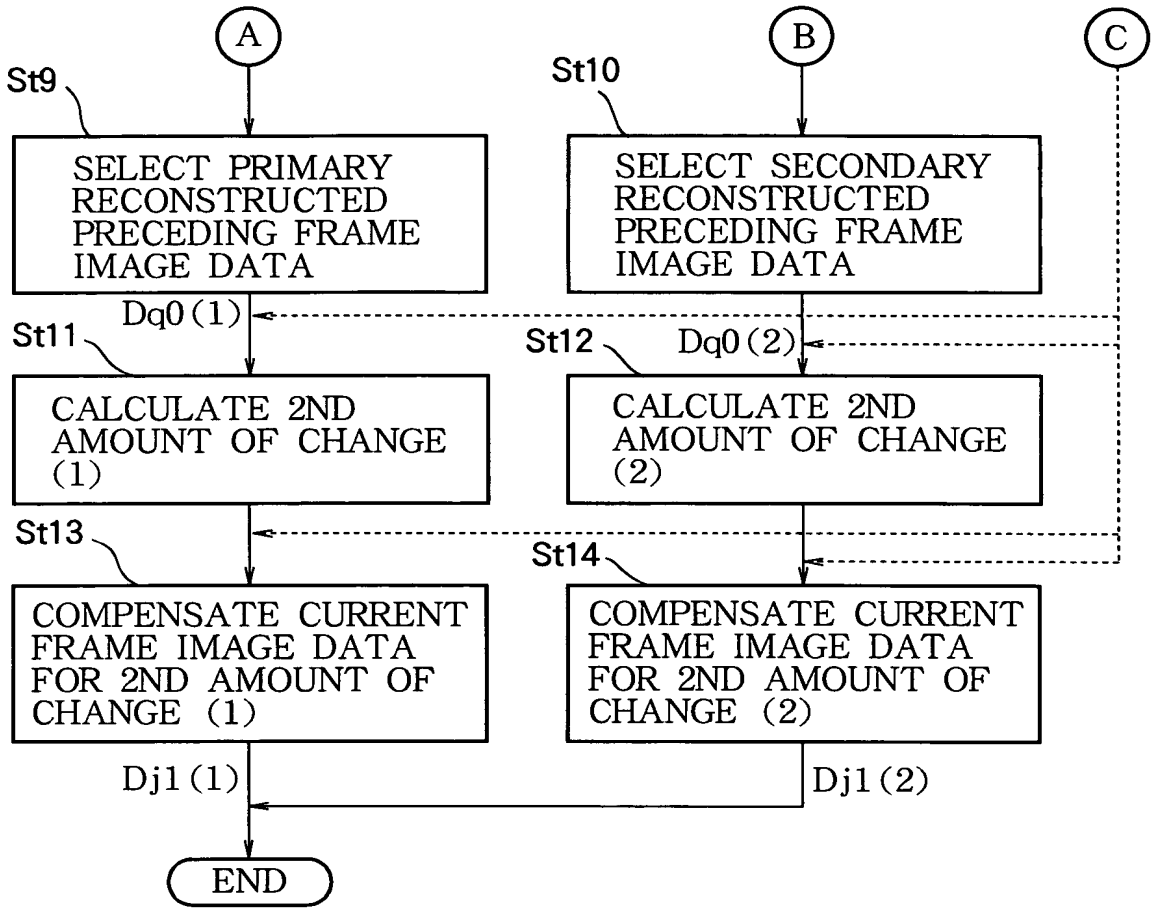

A
B
C
St9
St10
SELECT PRIMARY RECONSTRUCTED PRECEDING FRAME IMAGE DATA
SELECT SECONDARY RECONSTRUCTED PRECEDING FRAME IMAGE DATA
Dq0 (1)
Dq0 (2)
St11
St12
CALCULATE 2ND AMOUNT OF CHANGE (1)
CALCULATE 2ND AMOUNT OF CHANGE (2)
St13
St14
COMPENSATE CURRENT FRAME IMAGE DATA FOR 2ND AMOUNT OF CHANGE (1)
COMPENSATE CURRENT FRAME IMAGE DATA FOR 2ND AMOUNT OF CHANGE (2)
Dj1 (1)
Dj1 (2)
END

FIG. 7

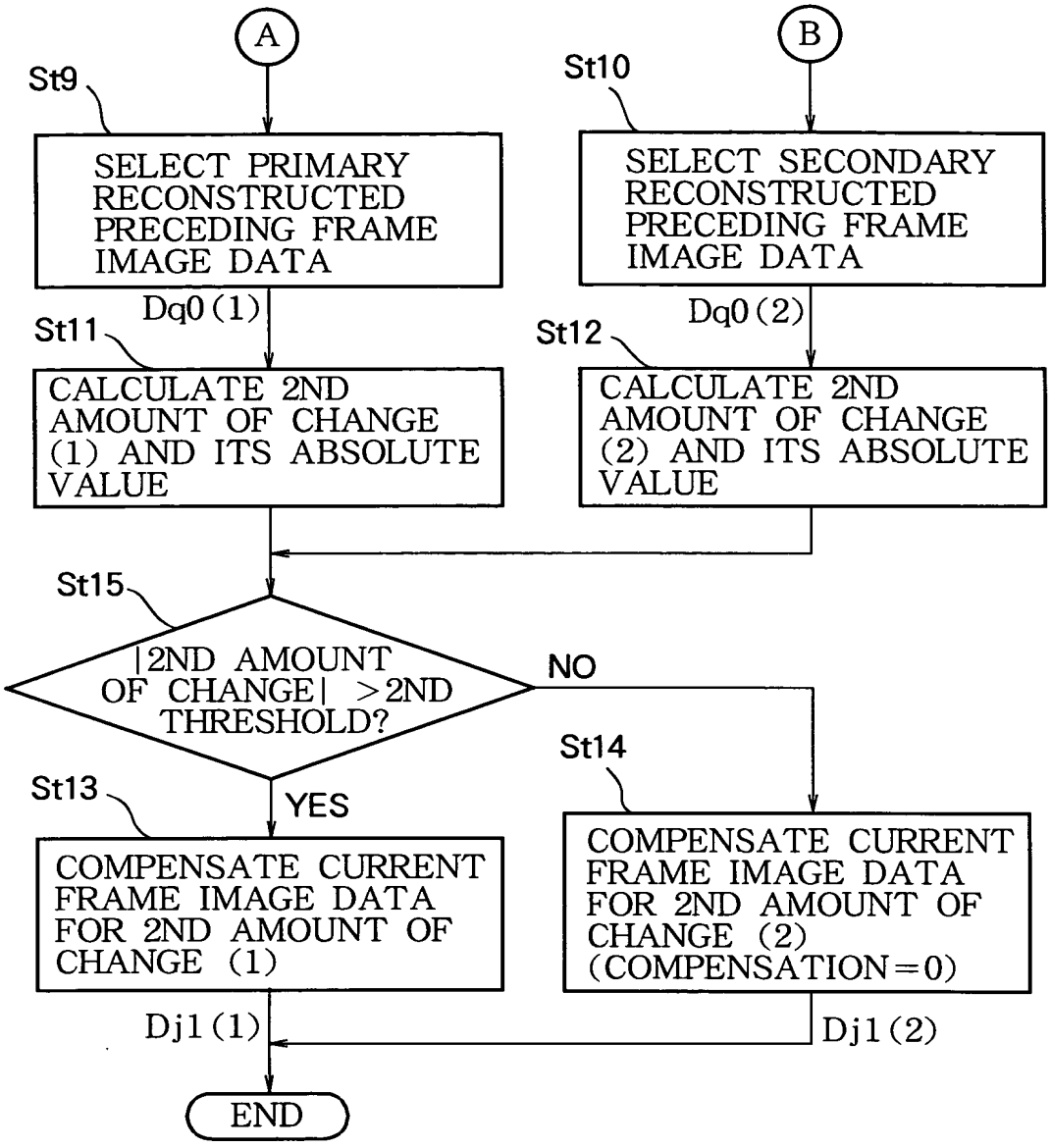

A
B
St9
St10
SELECT PRIMARY RECONSTRUCTED PRECEDING FRAME IMAGE DATA
SELECT SECONDARY RECONSTRUCTED PRECEDING FRAME IMAGE DATA
Dq0 (1)
Dq0 (2)
St11
St12
CALCULATE 2ND AMOUNT OF CHANGE (1) AND ITS ABSOLUTE VALUE
CALCULATE 2ND AMOUNT OF CHANGE (2) AND ITS ABSOLUTE VALUE
St15
|2ND AMOUNT OF CHANGE| >2ND THRESHOLD?
NO
YES
St14
St13
COMPENSATE CURRENT FRAME IMAGE DATA FOR 2ND AMOUNT OF CHANGE (1)
COMPENSATE CURRENT FRAME IMAGE DATA FOR 2ND AMOUNT OF CHANGE (2) (COMPENSATION=0)
Dj1 (1)
Dj1 (2)
END

FIG. 8

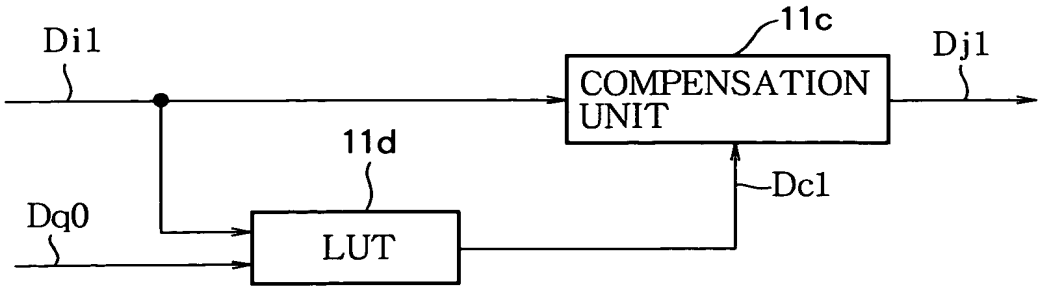

Di1
11c
Dj1
COMPENSATION UNIT
11d
Dc1
Dq0
LUT

FIG.9

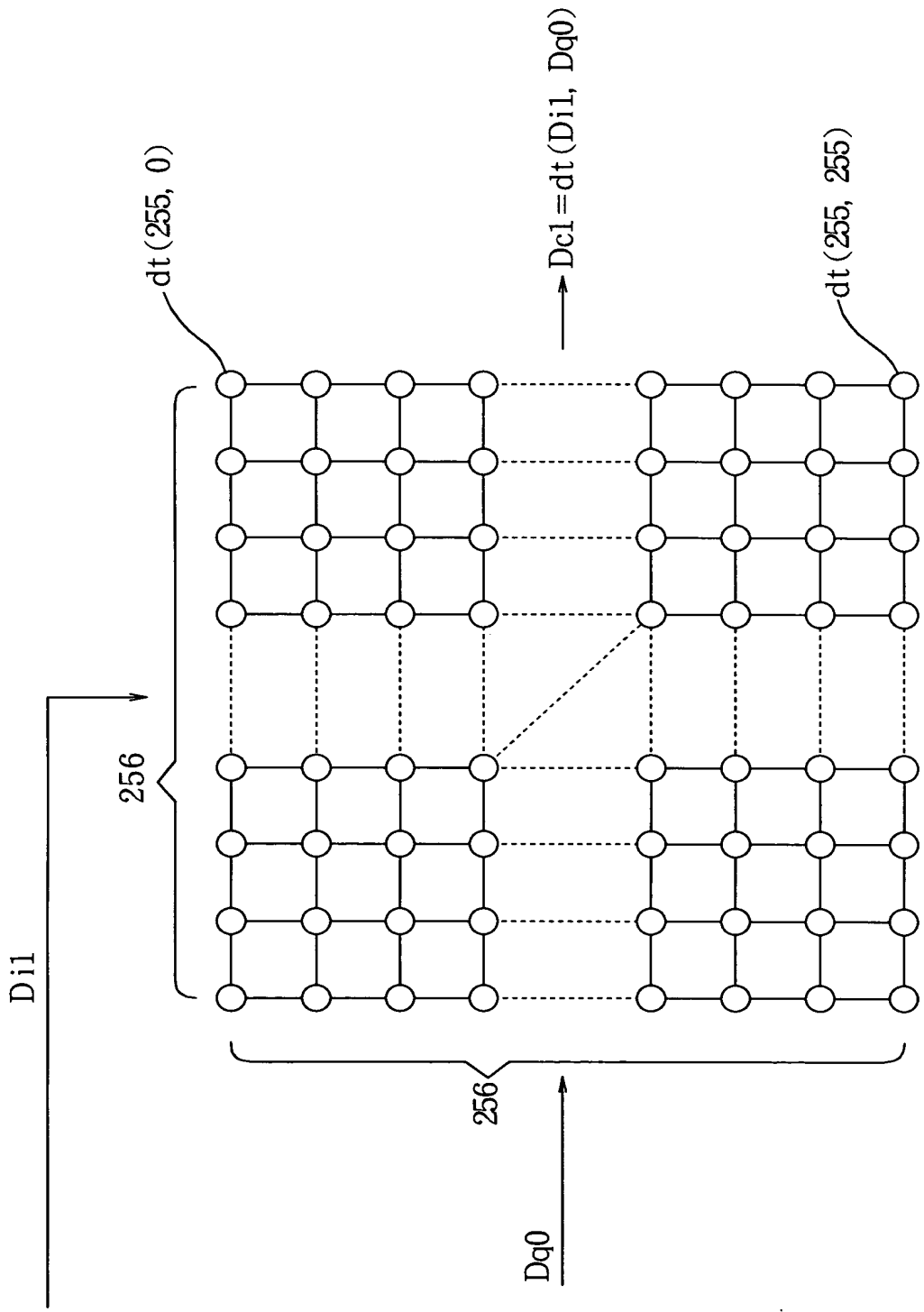


FIG.10

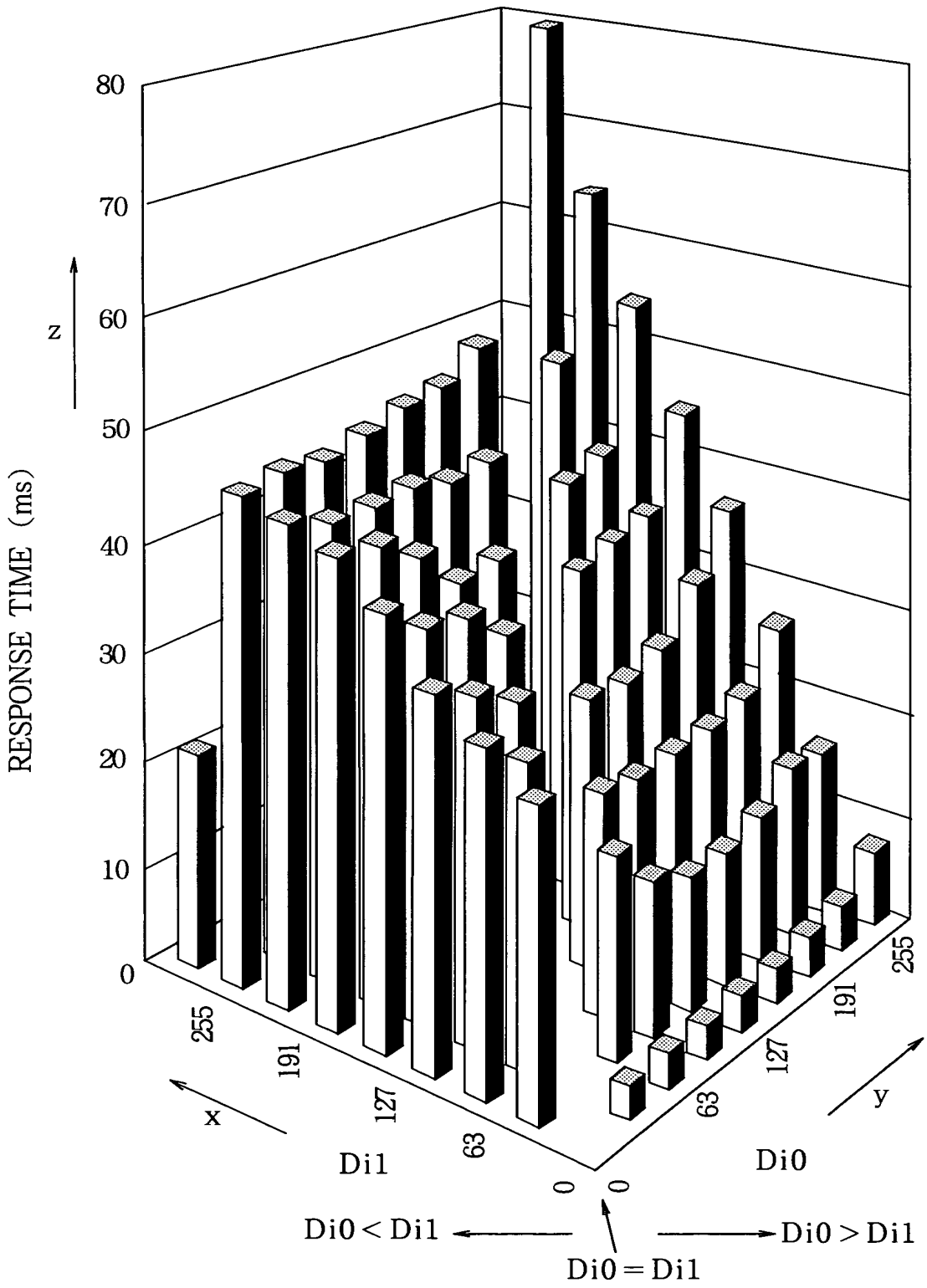

RESPONSE TIME (ms)
z
80
70
60
50
40
30
20
10
0
x
255
191
127
63
0
Di1
y
0
63
127
191
255
Di0
Di0 < Di1
Di0 = Di1
Di0 > Di1

FIG.11

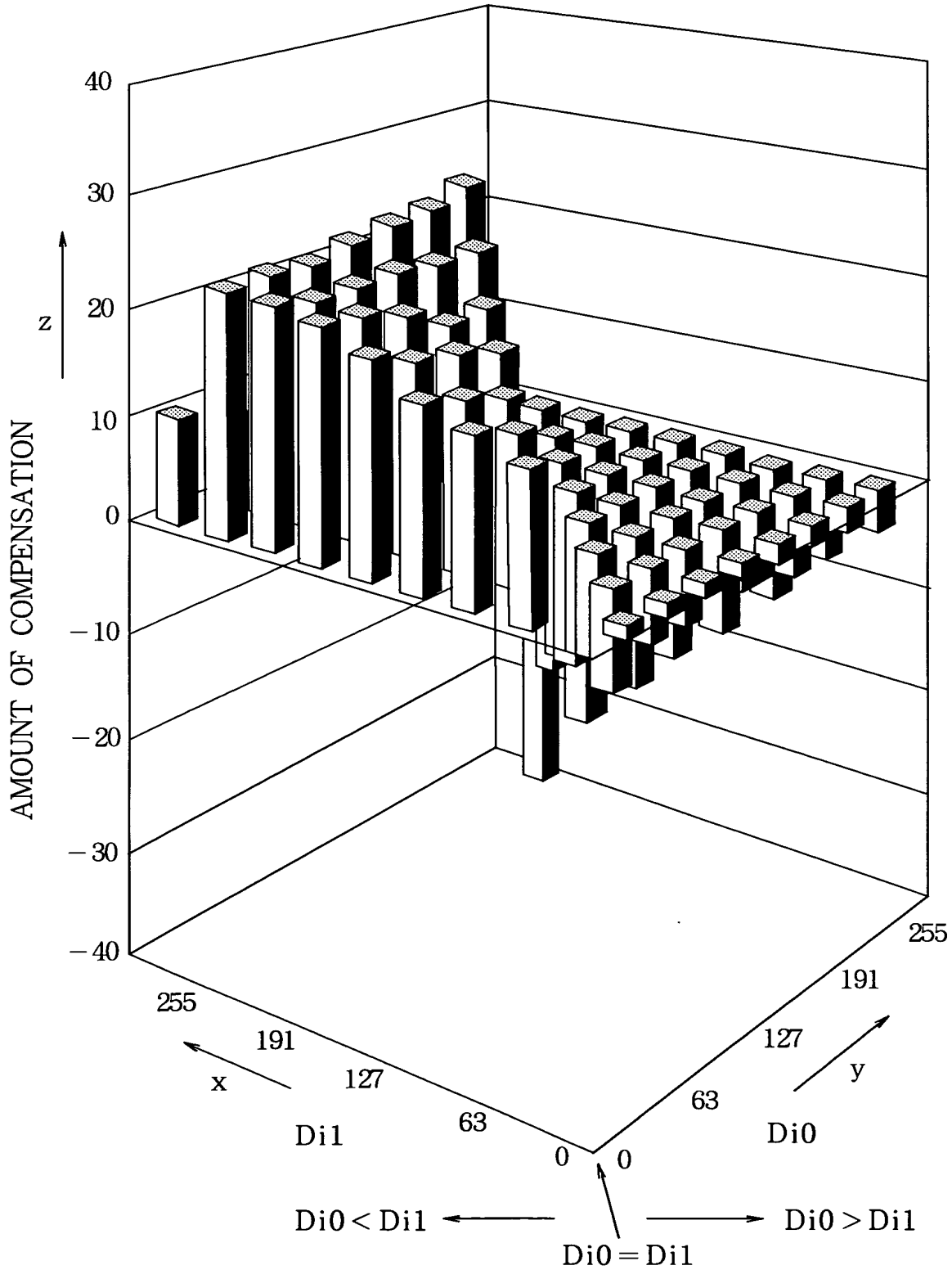

AMOUNT OF COMPENSATION
z
40
30
20
10
0
−10
−20
−30
−40
255
191
127
63
0
x
Di1
y
Di0
Di0 < Di1
Di0 = Di1
Di0 > Di1

FIG.12

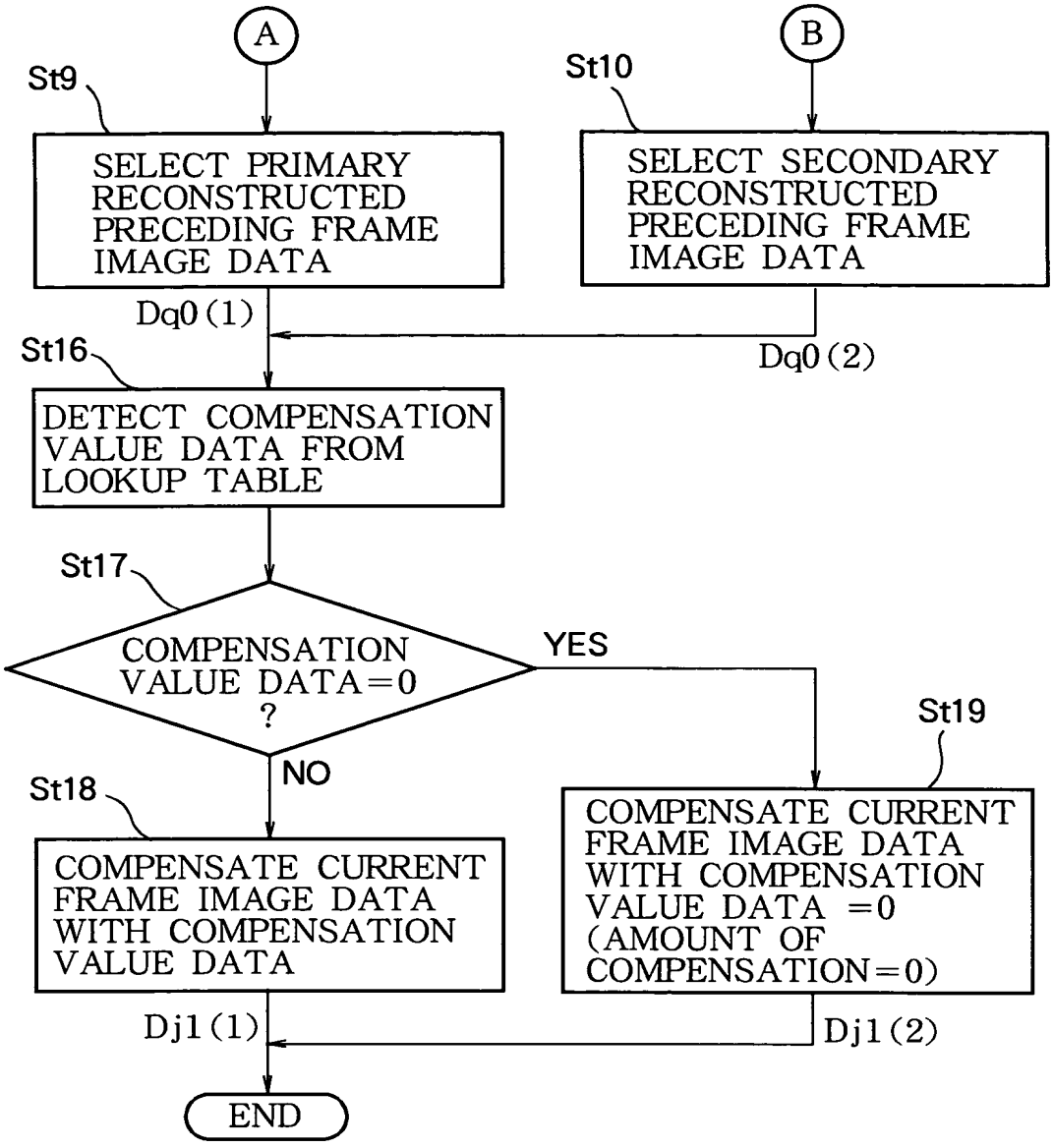

A
B
St9
St10
SELECT PRIMARY RECONSTRUCTED PRECEDING FRAME IMAGE DATA
SELECT SECONDARY RECONSTRUCTED PRECEDING FRAME IMAGE DATA
Dq0 (1)
Dq0 (2)
St16
DETECT COMPENSATION VALUE DATA FROM LOOKUP TABLE
St17
COMPENSATION VALUE DATA=0 ?
YES
NO
St18
St19
COMPENSATE CURRENT FRAME IMAGE DATA WITH COMPENSATION VALUE DATA
COMPENSATE CURRENT FRAME IMAGE DATA WITH COMPENSATION VALUE DATA =0 (AMOUNT OF COMPENSATION=0)
Dj1 (1)
Dj1 (2)
END

FIG.13

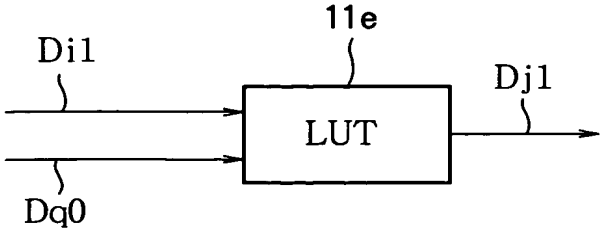

11e
Di1
Dj1
LUT
Dq0

FIG.14

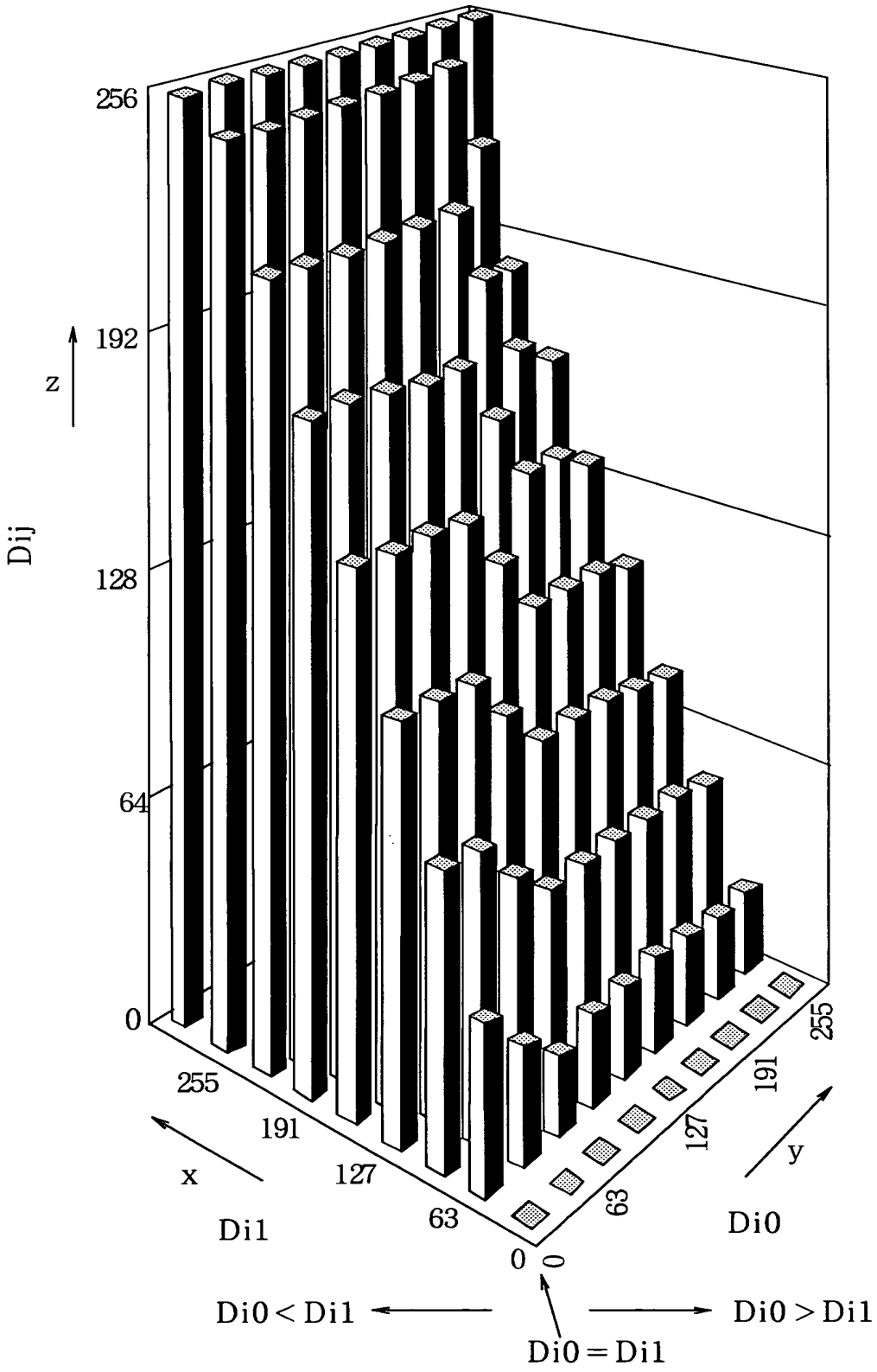

256
192
128
64
0
Dij
z
255
191
127
63
0
x
Di1
0
63
127
191
255
y
Di0
Di0 < Di1
Di0 = Di1
Di0 > Di1

FIG.15

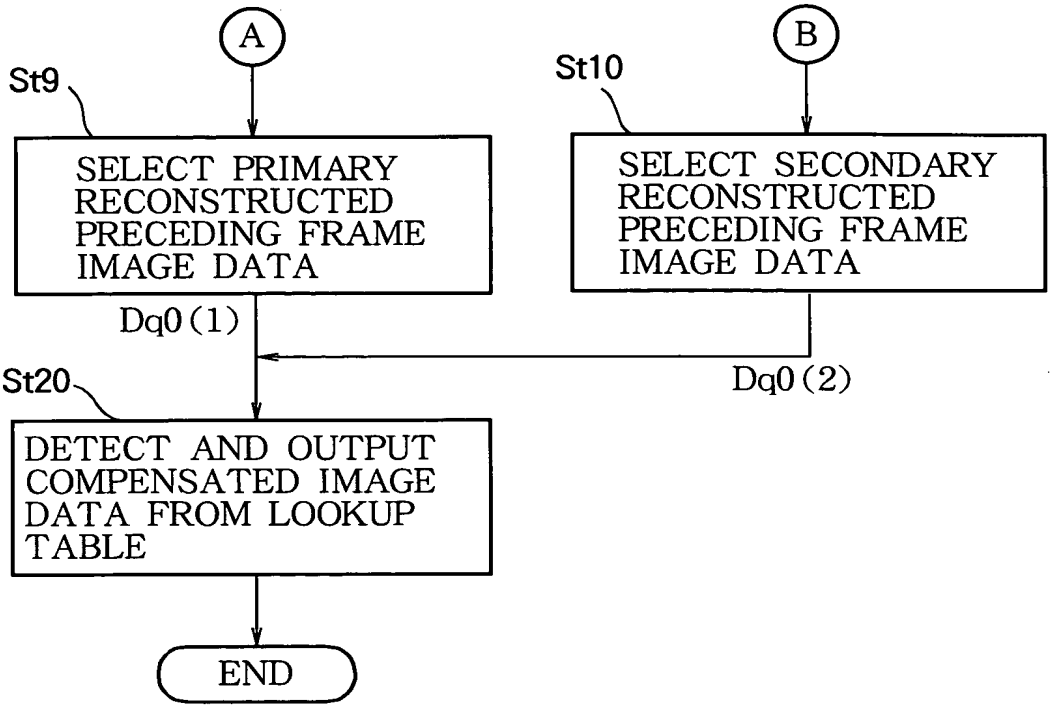

A
B
St9
St10
SELECT PRIMARY RECONSTRUCTED PRECEDING FRAME IMAGE DATA
SELECT SECONDARY RECONSTRUCTED PRECEDING FRAME IMAGE DATA
Dq0(1)
Dq0(2)
St20
DETECT AND OUTPUT COMPENSATED IMAGE DATA FROM LOOKUP TABLE
END

FIG.16

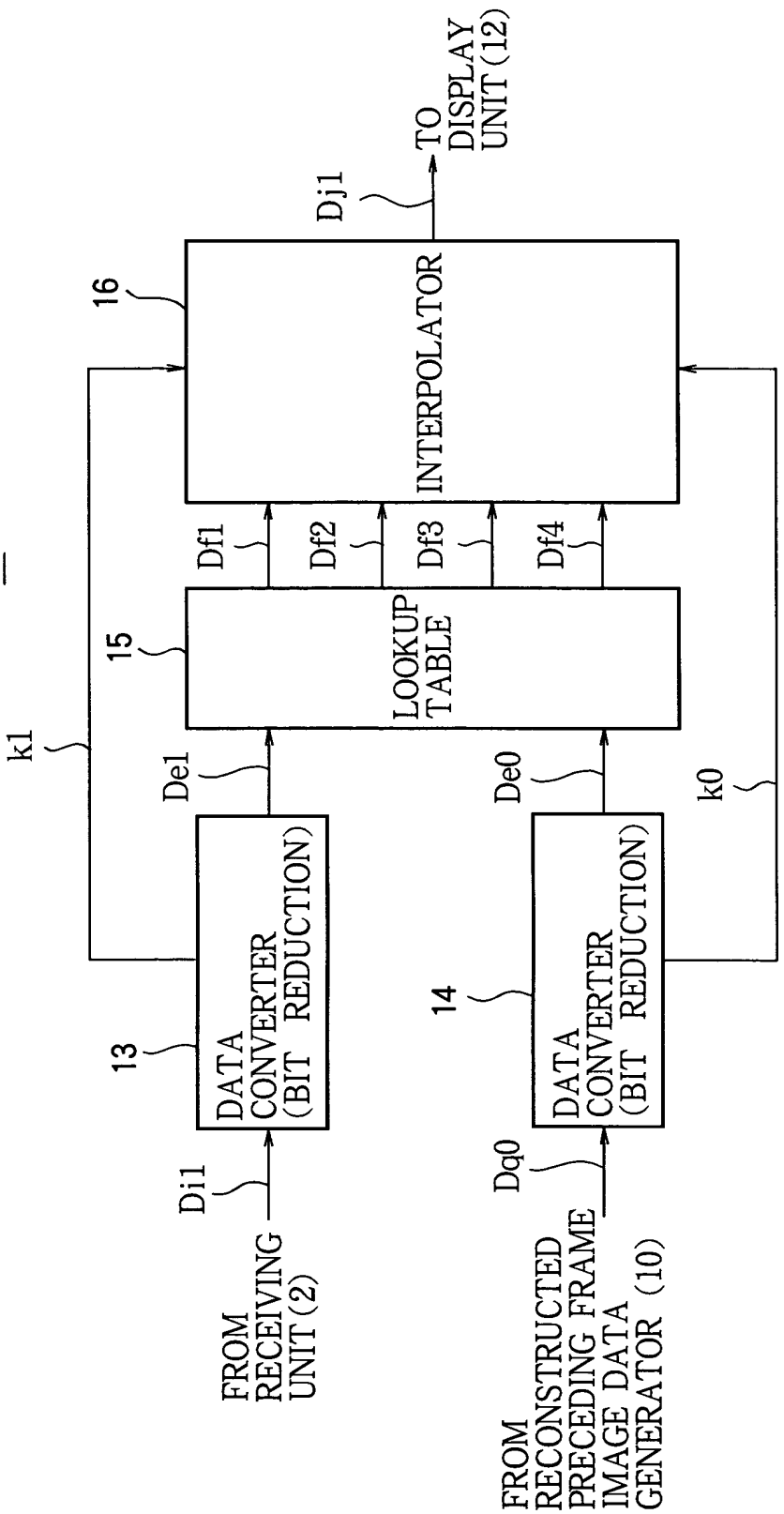

11
16
Dj1
TO DISPLAY UNIT (12)
INTERPOLATOR
Df1
Df2
Df3
Df4
15
LOOKUP TABLE
k1
De1
De0
k0
13
DATA CONVERTER (BIT REDUCTION)
14
DATA CONVERTER (BIT REDUCTION)
Di1
Dq0
FROM RECEIVING UNIT (2)
FROM RECONSTRUCTED PRECEDING FRAME IMAGE DATA GENERATOR (10)

FIG.17

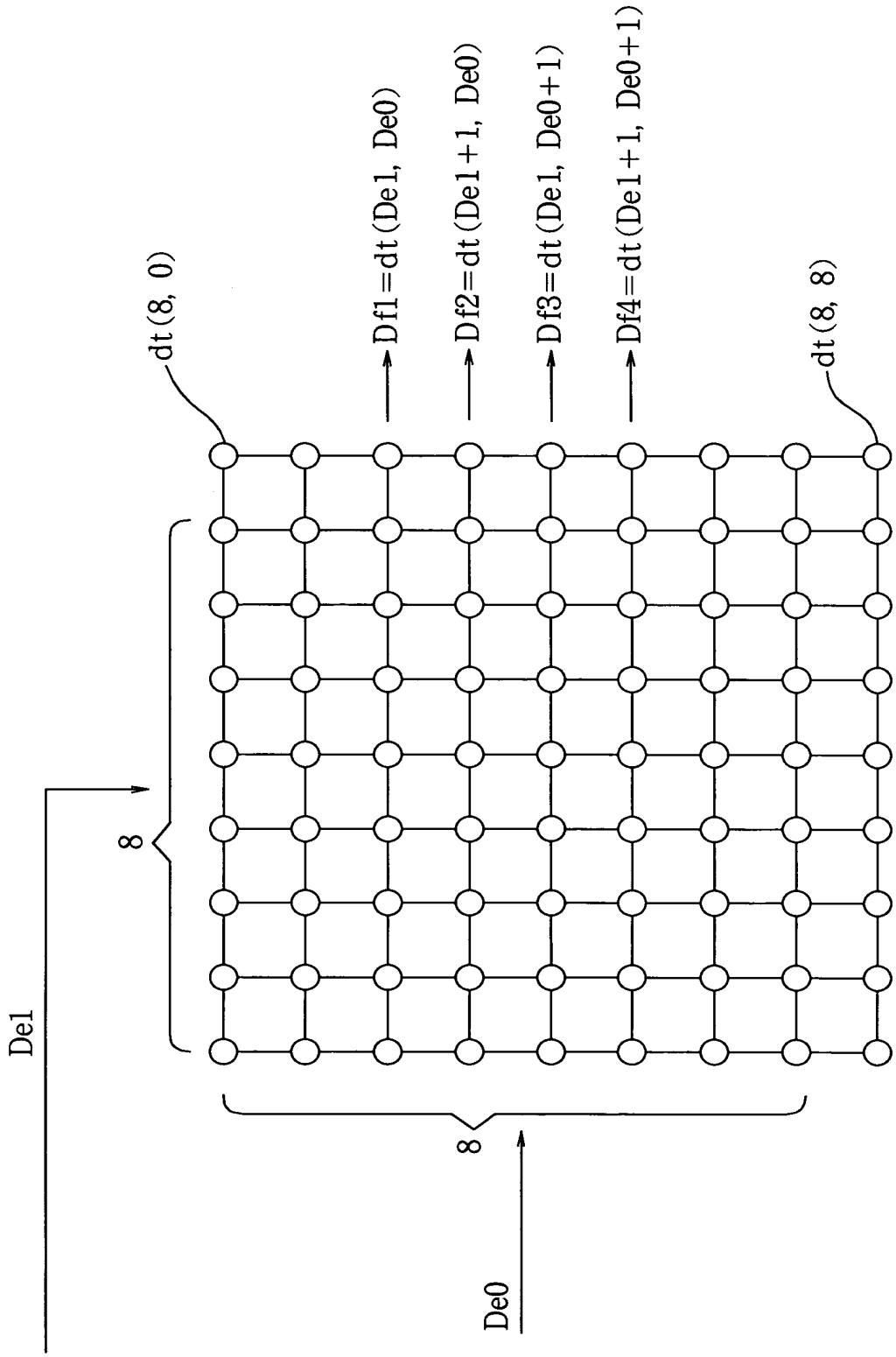

dt(8, 0)
Df1=dt(De1, De0)
Df2=dt(De1+1, De0)
Df3=dt(De1, De0+1)
Df4=dt(De1+1, De0+1)
dt(8, 8)
8
8
De1
De0

FIG.18

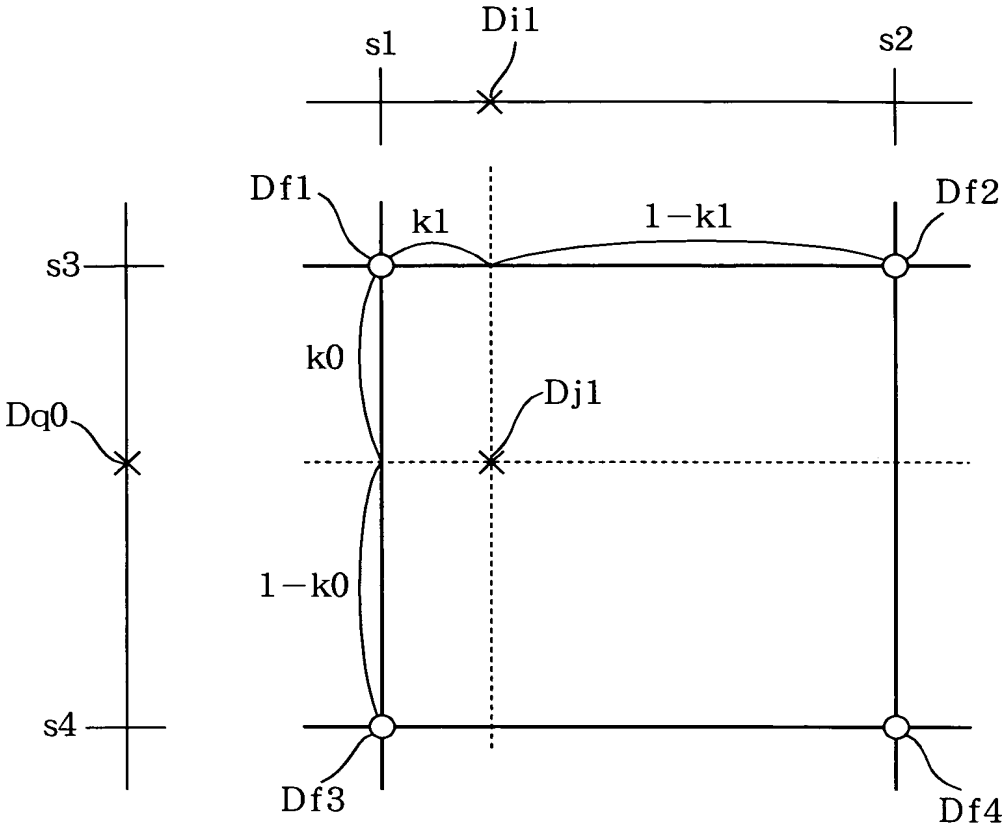


FIG.19

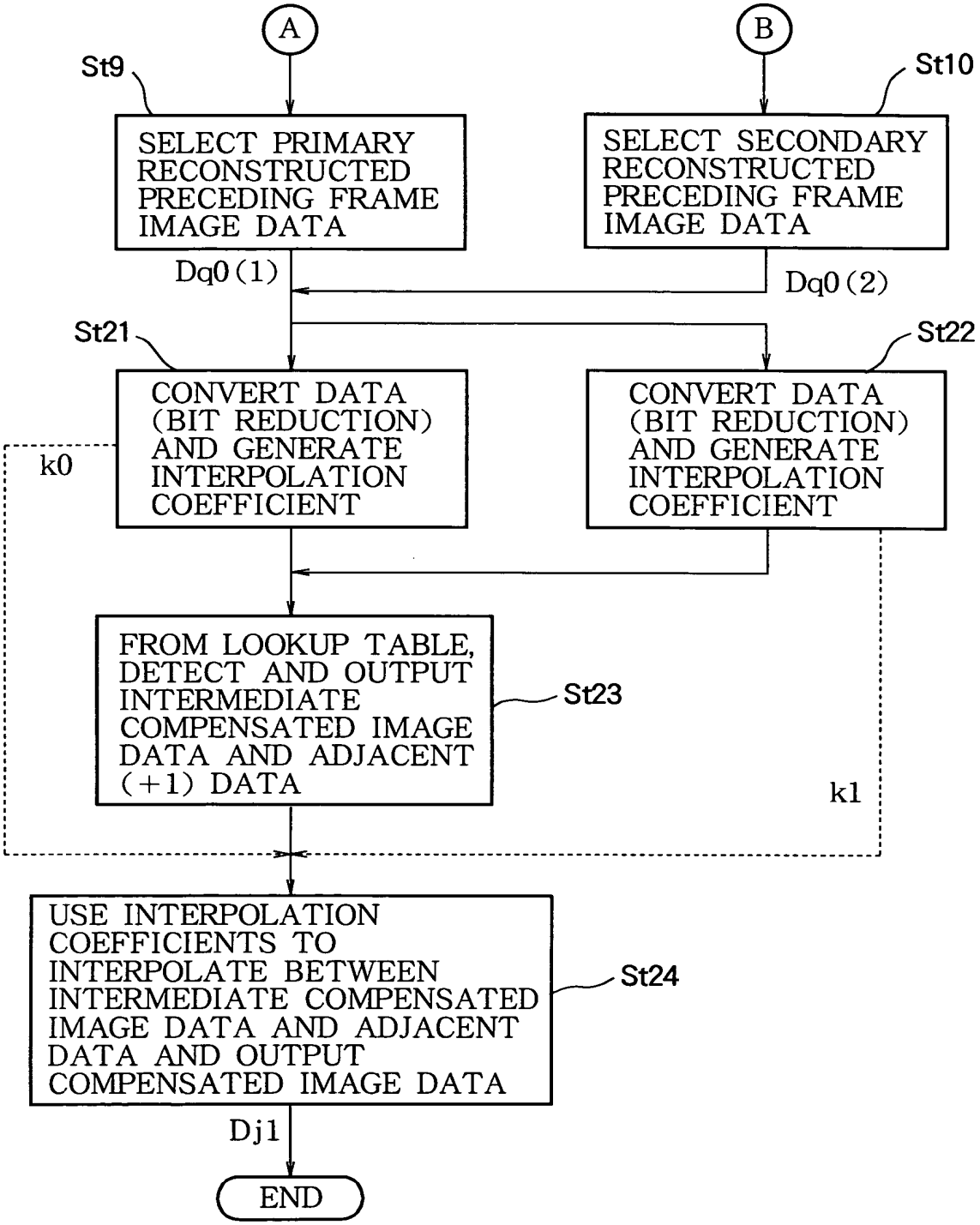

A
B
St9
St10
SELECT PRIMARY RECONSTRUCTED PRECEDING FRAME IMAGE DATA
SELECT SECONDARY RECONSTRUCTED PRECEDING FRAME IMAGE DATA
Dq0(1)
Dq0(2)
St21
St22
CONVERT DATA (BIT REDUCTION) AND GENERATE INTERPOLATION COEFFICIENT
CONVERT DATA (BIT REDUCTION) AND GENERATE INTERPOLATION COEFFICIENT
k0
k1
FROM LOOKUP TABLE, DETECT AND OUTPUT INTERMEDIATE COMPENSATED IMAGE DATA AND ADJACENT (+1) DATA
St23
USE INTERPOLATION COEFFICIENTS TO INTERPOLATE BETWEEN INTERMEDIATE COMPENSATED IMAGE DATA AND ADJACENT DATA AND OUTPUT COMPENSATED IMAGE DATA
St24
Dj1
END

FIG.20

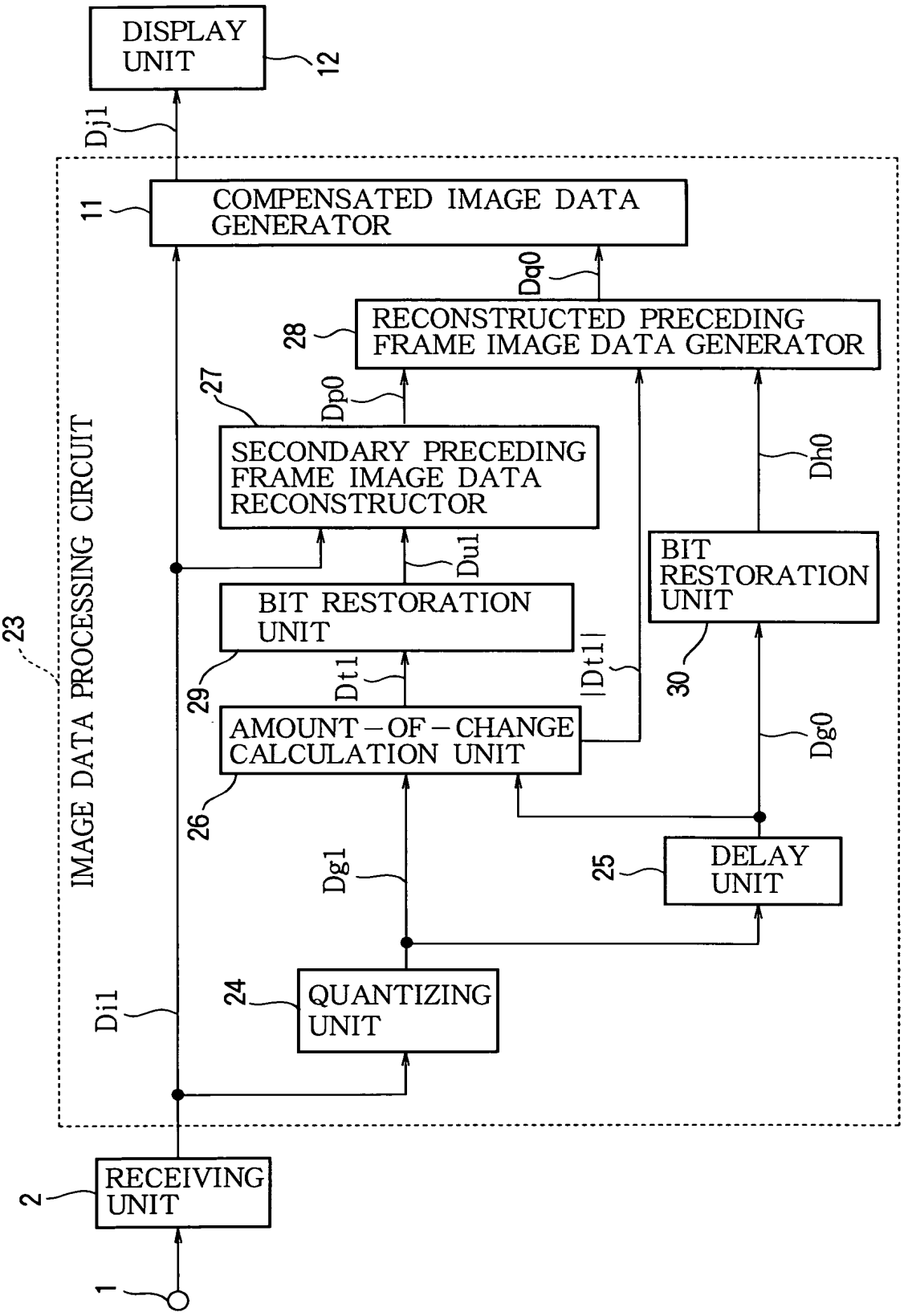

DISPLAY UNIT
12
Dj1
IMAGE DATA PROCESSING CIRCUIT
23
11
COMPENSATED IMAGE DATA GENERATOR
Dq0
28
RECONSTRUCTED PRECEDING FRAME IMAGE DATA GENERATOR
27
Dp0
SECONDARY PRECEDING FRAME IMAGE DATA RECONSTRUCTOR
Dh0
Du1
BIT RESTORATION UNIT
BIT RESTORATION UNIT
29
Dt1
|Dt1|
30
AMOUNT-OF-CHANGE CALCULATION UNIT
Dg0
26
Dg1
25
DELAY UNIT
Di1
24
QUANTIZING UNIT
2
RECEIVING UNIT
1

FIG.21A

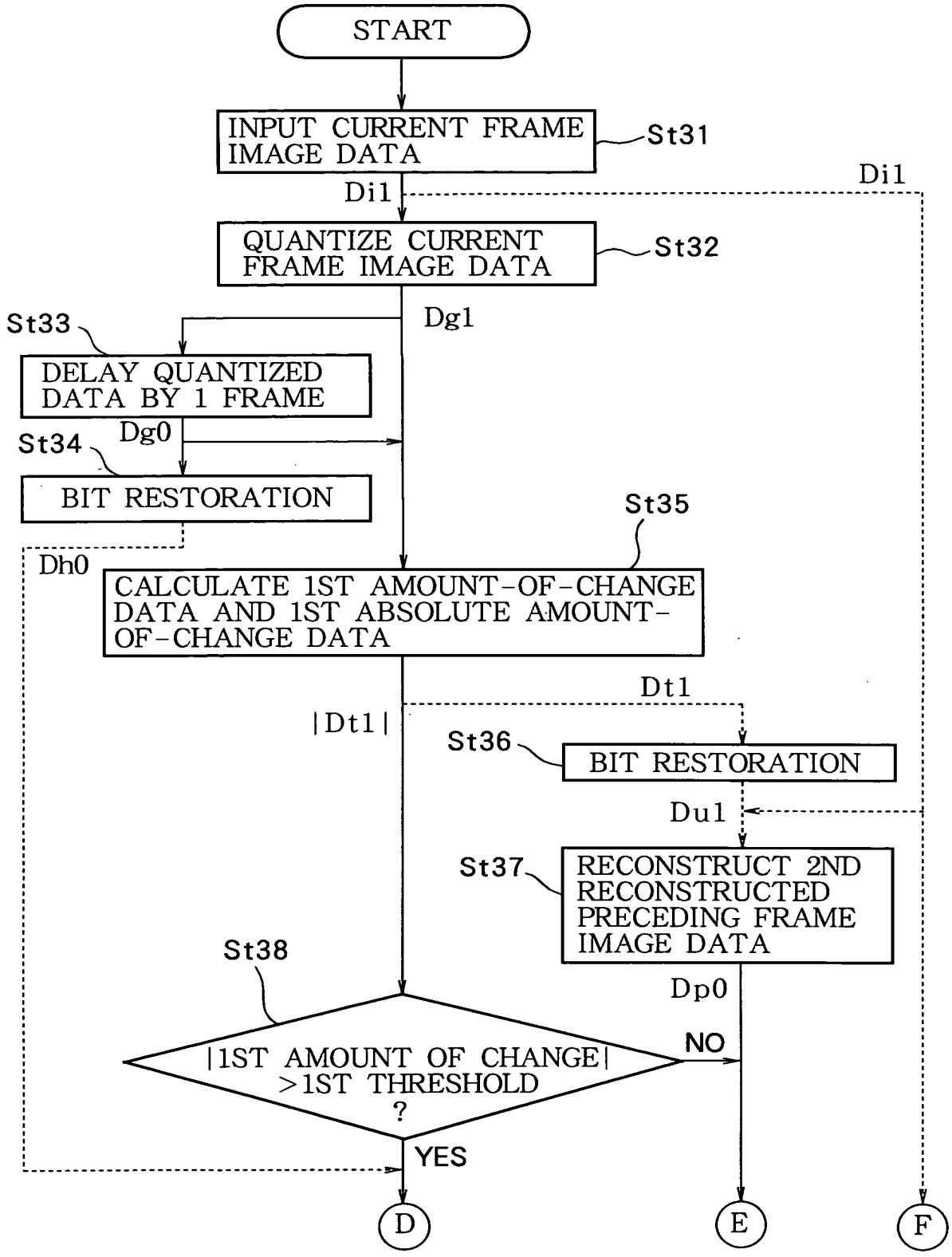
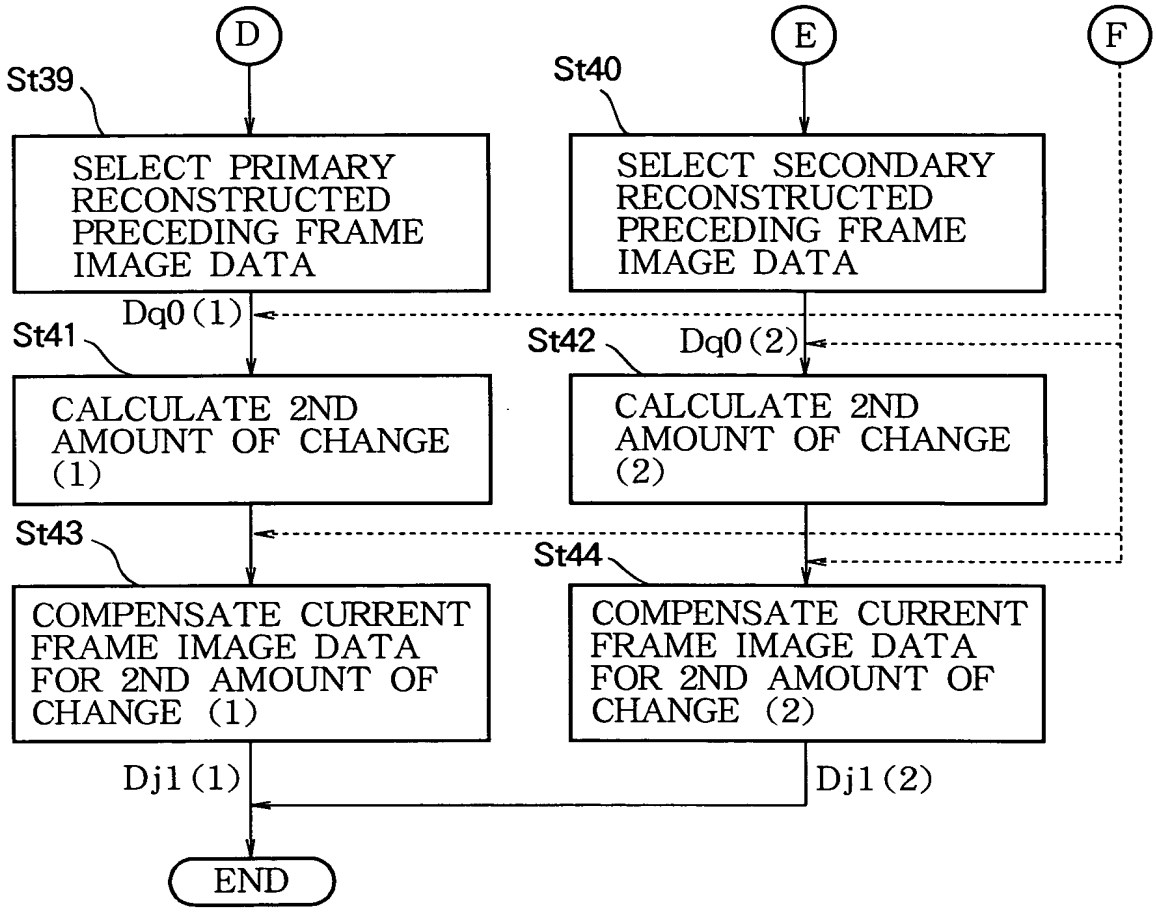

START
INPUT CURRENT FRAME IMAGE DATA
St31
Di1
Di1
QUANTIZE CURRENT FRAME IMAGE DATA
St32
Dg1
St33
DELAY QUANTIZED DATA BY 1 FRAME
Dg0
St34
BIT RESTORATION
St35
Dh0
CALCULATE 1ST AMOUNT-OF-CHANGE DATA AND 1ST ABSOLUTE AMOUNT-OF-CHANGE DATA
Dt1
|Dt1|
St36
BIT RESTORATION
Du1
St37
RECONSTRUCT 2ND RECONSTRUCTED PRECEDING FRAME IMAGE DATA
Dp0
St38
|1ST AMOUNT OF CHANGE| >1ST THRESHOLD ?
NO
YES
D
E
F

FIG.21B


D
E
F
St39
St40
SELECT PRIMARY RECONSTRUCTED PRECEDING FRAME IMAGE DATA
SELECT SECONDARY RECONSTRUCTED PRECEDING FRAME IMAGE DATA
Dq0 (1)
Dq0 (2)
St41
St42
CALCULATE 2ND AMOUNT OF CHANGE (1)
CALCULATE 2ND AMOUNT OF CHANGE (2)
St43
St44
COMPENSATE CURRENT FRAME IMAGE DATA FOR 2ND AMOUNT OF CHANGE (1)
COMPENSATE CURRENT FRAME IMAGE DATA FOR 2ND AMOUNT OF CHANGE (2)
Dj1 (1)
Dj1 (2)
END